Claims

1. An agent for the treatment of a prion disease, the agent comprising mesenchymal cells as an effective component.

2. The agent according to Claim 1, wherein the mesenchymal cells have abnormal prion growth inhibitory activity.

3. The agent according to either Claim 1 or 2, wherein the mesenchymal cells have introduced thereinto an anti-prion antibody gene having abnormal prion growth inhibitory activity.

4. The agent according to Claim 3, wherein the antibody gene comprises an antibody heavy chain gene and an antibody light chain gene,

the antibody heavy chain gene being selected from the group consisting of

(1a) a nucleic acid that contains a sequence selected from the group consisting of SEQ ID NOS: 1, 3, 5, 30, 32, and 34,

(1b) a nucleic acid that, by genetic code degeneration, codes for the same polypeptide as does the nucleic acid of (1a) above,

(1c) a nucleic acid that has a variation in the sequence of the nucleic acid of (1a) or (1b) above but that still codes for a polypeptide that has the same function as the polypeptide that said nucleic acid codes for, and

(1d) a nucleic acid that hybridizes under stringent conditions with a complementary strand of the nucleic acid

of any one of (1a) to (1c) above or a fragment thereof, and that codes for a polypeptide that has the same function as the polypeptide that said nucleic acid codes for,

the antibody light chain gene being selected from the group consisting of

(2a) a nucleic acid containing a sequence selected from the group consisting of SEQ ID NOS: 2, 4, 6, 31, 33, and 35,

(2b) a nucleic acid that, by genetic code degeneration, codes for the same polypeptide as does the nucleic acid of (2a) above,

(2c) a nucleic acid that has a variation in the sequence of the nucleic acid of (2a) or (2b) above but that still codes for a polypeptide that has the same function as the polypeptide that said nucleic acid codes for, and

(2d) a nucleic acid that hybridizes under stringent conditions with a complementary strand of the nucleic acid of any one of (2a) to (2c) above or a fragment thereof, and that codes for a polypeptide that has the same function as the polypeptide that said nucleic acid codes for, and

an antibody obtained by expression of the antibody heavy chain gene and the antibody light chain gene having abnormal prion growth inhibitory activity.

5. The agent according to any one of Claims 1 to 4, wherein it is for intravenous administration.

6. The agent according to any one of Claims 1 to 5, wherein the mesenchymal cells are selected from the group

consisting of bone-marrow cells, umbilical cord blood cells, and peripheral blood cells.

7. An anti-prion antibody gene comprising an antibody heavy chain gene and an antibody light chain gene,

the antibody heavy chain gene being selected from the group consisting of

(1a) a nucleic acid that contains a sequence selected from the group consisting of SEQ ID NOS: 1, 3, 5, 30, 32, and 34,

(1b) a nucleic acid that, by genetic code degeneration, codes for the same polypeptide as does the nucleic acid of (1a) above,

(1c) a nucleic acid that has a variation in the sequence of the nucleic acid of (1a) or (1b) above but that still codes for a polypeptide that has the same function as the polypeptide that said nucleic acid codes for, and

(1d) a nucleic acid that hybridizes under stringent conditions with a complementary strand of the nucleic acid of any one of (1a) to (1c) above or a fragment thereof, and that codes for a polypeptide that has the same function as the polypeptide that said nucleic acid codes for,

the antibody light chain gene being selected from the group consisting of

(2a) a nucleic acid containing a sequence selected from the group consisting of SEQ ID NOS: 2, 4, 6, 31, 33, and 35,

(2b) a nucleic acid that, by genetic code degeneration, codes for the same polypeptide as does the nucleic acid of (2a) above,

(2c) a nucleic acid that has a variation in the sequence of the nucleic acid of (2a) or (2b) above but that still codes for a polypeptide that has the same function as the polypeptide that said nucleic acid codes for, and

(2d) a nucleic acid that hybridizes under stringent conditions with a complementary strand of the nucleic acid of any one of (2a) to (2c) above or a fragment thereof, and that codes for a polypeptide that has the same function as the polypeptide that said nucleic acid codes for, and

an antibody obtained by expression of the antibody heavy chain gene and the antibody light chain gene having abnormal prion growth inhibitory activity.

8. A vector comprising the anti-prion antibody gene according to Claim 7.

9. The vector according to Claim 8, wherein it is an adenovirus vector containing an RGD sequence.

10. An anti-prion chimera antibody comprising an antibody variable region that is coded for by the anti-prion antibody gene according to Claim 7, and an antibody constant region of an animal other than a mouse.

11. The anti-prion chimera antibody according to Claim 10, wherein it is coded for by

an antibody heavy chain gene selected from the group consisting of

(1a) a nucleic acid that contains a sequence selected from the group consisting of SEQ ID NOS: 30, 32, and 34,

(1b) a nucleic acid that, by genetic code degeneration, codes for the same polypeptide as does the nucleic acid of (1a) above,

(1c) a nucleic acid that has a variation in the sequence of the nucleic acid of (1a) or (1b) above but that still codes for a polypeptide that has the same function as the polypeptide that said nucleic acid codes for, and

(1d) a nucleic acid that hybridizes under stringent conditions with a complementary strand of the nucleic acid of any one of (1a) to (1c) above or a fragment thereof, and that codes for a polypeptide that has the same function as the polypeptide that said nucleic acid codes for, and

an antibody light chain gene selected from the group consisting of

(2a) a nucleic acid containing a sequence selected from the group consisting of SEQ ID NOS: 31, 33, and 35,

(2b) a nucleic acid that, by genetic code degeneration, codes for the same polypeptide as does the nucleic acid of (2a) above,

(2c) a nucleic acid that has a variation in the sequence of the nucleic acid of (2a) or (2b) above but that still codes for a polypeptide that has the same function as the polypeptide that said nucleic acid codes for, and

(2d) a nucleic acid that hybridizes under stringent conditions with a complementary strand of the nucleic acid of any one of (2a) to (2c) above or a fragment thereof, and

that codes for a polypeptide that has the same function as the polypeptide that said nucleic acid codes for.

12. A nucleic acid that codes for the anti-prion chimera antibody according to either Claim 10 or 11.

13. A method of producing cells having abnormal prion growth inhibitory activity, the method comprising introducing into cells a gene that imparts abnormal prion growth inhibitory activity.

14. The method according to Claim 13, wherein the gene that imparts abnormal prion growth inhibitory activity is an anti-prion antibody gene.

15. A method of producing cells having abnormal prion growth inhibitory activity, the method comprising introducing the gene according to Claim 7 into cells via the vector according to either Claim 8 or 9.

16. The method according to any one of Claims 13 to 15, wherein the cells are mesenchymal cells.

17. Cells produced by the method according to any one of Claims 13 to 16, the cells having abnormal prion growth inhibitory activity.

18. A method of producing an agent for the treatment of a prion disease, the method comprising the method according to Claim 16.

19. A sustained-release preparation for the treatment of a prion disease, the preparation releasing an anti-prion antibody.

20. The preparation according to Claim 19, wherein the anti-prion antibody is an antibody that is coded for by the nucleic acid according to Claim 7 and/or the anti-prion chimera antibody according to either Claim 10 or 11.

21. The preparation according to Claim 19 or 20, wherein it is in osmotic pump form.

22. The preparation according to either Claim 19 or 20, wherein it comprises anti-prion antibody-secreting cells.

23. The preparation according to Claim 22, wherein the anti-prion antibody-secreting cells are the cells according to Claim 17.

24. A method of treating a prion disease, the method comprising administering a therapeutically effective amount of a remedy selected from the group consisting of the agent according to any one of Claims 1 to 6, the vector according to either Claim 8 or 9, the anti-prion chimera antibody according to either Claim 10 or 11, and the preparation according to any one of Claims 19 to 23.

25. A method of treating a prion disease, the method comprising sustainedly releasing an anti-prion antibody.

26. The method according to Claim 25, wherein it comprises administering the preparation according to any one of Claims 19 to 23 and/or the vector according to either Claim 8 or 9.

27. The method according to Claim 25, wherein it comprises introducing an anti-prion antibody gene into target cells.

28. Use of mesenchymal cells in producing an agent for delivering a substance to a lesion site of a prion disease.

29. An agent for delivering a substance to a lesion site of a prion disease, the agent comprising mesenchymal cells.

30. A method for delivering a substance to a lesion site of a prion disease using mesenchymal cells.